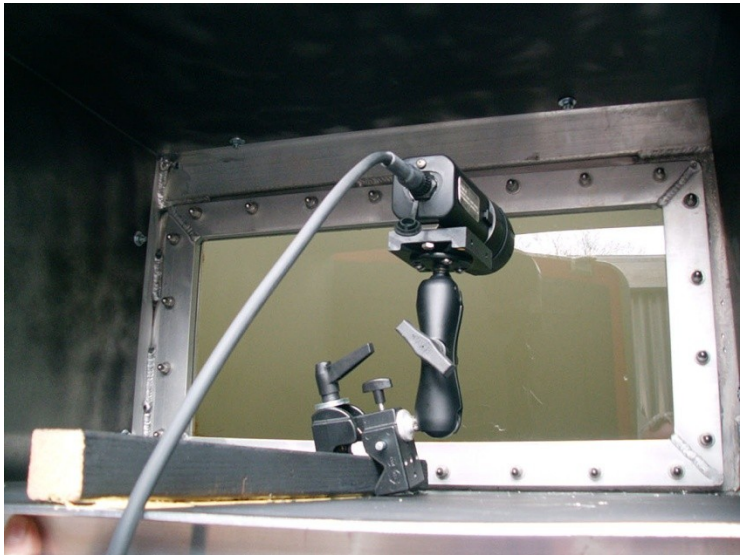
CRITFC Video Smolt Project

- Developed in response to Fish Passage Center interest to see if video could be substituted for at least some of the handling at Columbia Basin smolt facilities. Thus the desire to use video in a location prior to dewatering.
- Funded under the Columbia Basin Accords.



Problems

- Lighting. Even with high lighting, difficult to get a fast enough shutter speed to freeze images.
- High turbidity, especially in 2011
- Impossible to identify fish passing very far from the camera, especially with high turbidity.
- Are viewing only part of the height of the water column.
- Difficult to keep the window clean and becomes increasingly difficult as the year progresses. (Dewatering needed to properly clean.)
- Mind numbing video to review and most fish passing cannot be identified.

06/25/11 04:09:59
04/21/11 12:03:37
04/21/11 12:02:34
10/02/11 06:04:35

08/12/11 15:01:45
04/04/11 08:46:08
06/25/11 16:10:01
04/18/11 00:04:39

Steelhead living in ladder...

Counted 10 minutes of every hour every third day.

Date	Adult Salmon	Adult steelhead	Juv Chinook	Juv Coho	Lamprey	Juv Sockeye	Juv Steel-head	Unknown
4/4/2011	2	0	1	0	5	0	1	16
4/5/2011	0	0	0	0	0	0	1	8
4/6/2011	0	0	0	1	0	0	0	8
4/7/2011	1	0	1	4	0	1	0	15
4/8/2011	1	0	2	1	0	0	4	30
4/11/2011	0	0	0	0	1	0	1	32
4/12/2011	0	0	0	4	3	0	5	123
4/13/2011	0	0	3	3	1	0	1	116
4/16/2011	0	0	4	4	3	2	2	30
4/19/2011	0	0	0	0	0	3	14	72
4/22/2011	0	0	0	0	0	0	1	8
4/25/2011	0	1	20	4	3	0	15	68
4/28/2011	0	0	8	1	0	1	16	92
5/1/2011	1	4	20	3	2	1	6	135
5/4/2011	1	3	39	9	2	6	4	125
5/7/2011	3	0	27	4	2	0	14	387
5/9/2011	0	0	0	0	0	0	0	2
5/10/2011	0	0	1	0	0	0	0	11
5/13/2011	50	15	83	10	50	14	67	825
5/16/2011	7	1	4	0	6	0	13	22
5/20/2011	10	7	4	1	0	1	7	37
5/23/2011	14	4	22	0	3	4	9	69
5/26/2011	0	3	4	0	0	1	0	11
5/29/2011								

Ideas to deal with current shortcomings

- A viewing area similar to that for adults-narrow and high, rather than shallow and wide.
  - Would require major modifications
  - Debris would likely be an insurmountable pr
- Would likely work at smaller flumes

Project is funded by the Columbia Basin Accords but is being terminated after this year, folded into the Upstream Migration Mortality (Bonneville PIT tagging) project. Possibly, some smolt component could be included in this project.

2011 McNary work

- A presentation at the January Skamania PIT tag workshop on our work imprinting PIT tag codes on video of adults sampled at the AFF led to Dave Marvin suggesting seeing if we could use the McNary Dam diverter to divert fish we PIT tag at the Hanford Reach.
- I hoped to be able to get good video, getting condition and possibly trying to measure the fish to estimate growth rates from tagging to migration at McNary Dam.

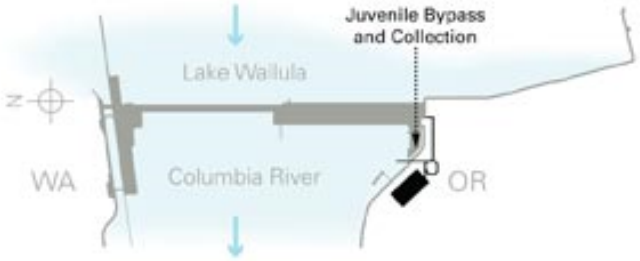
PTAGIS

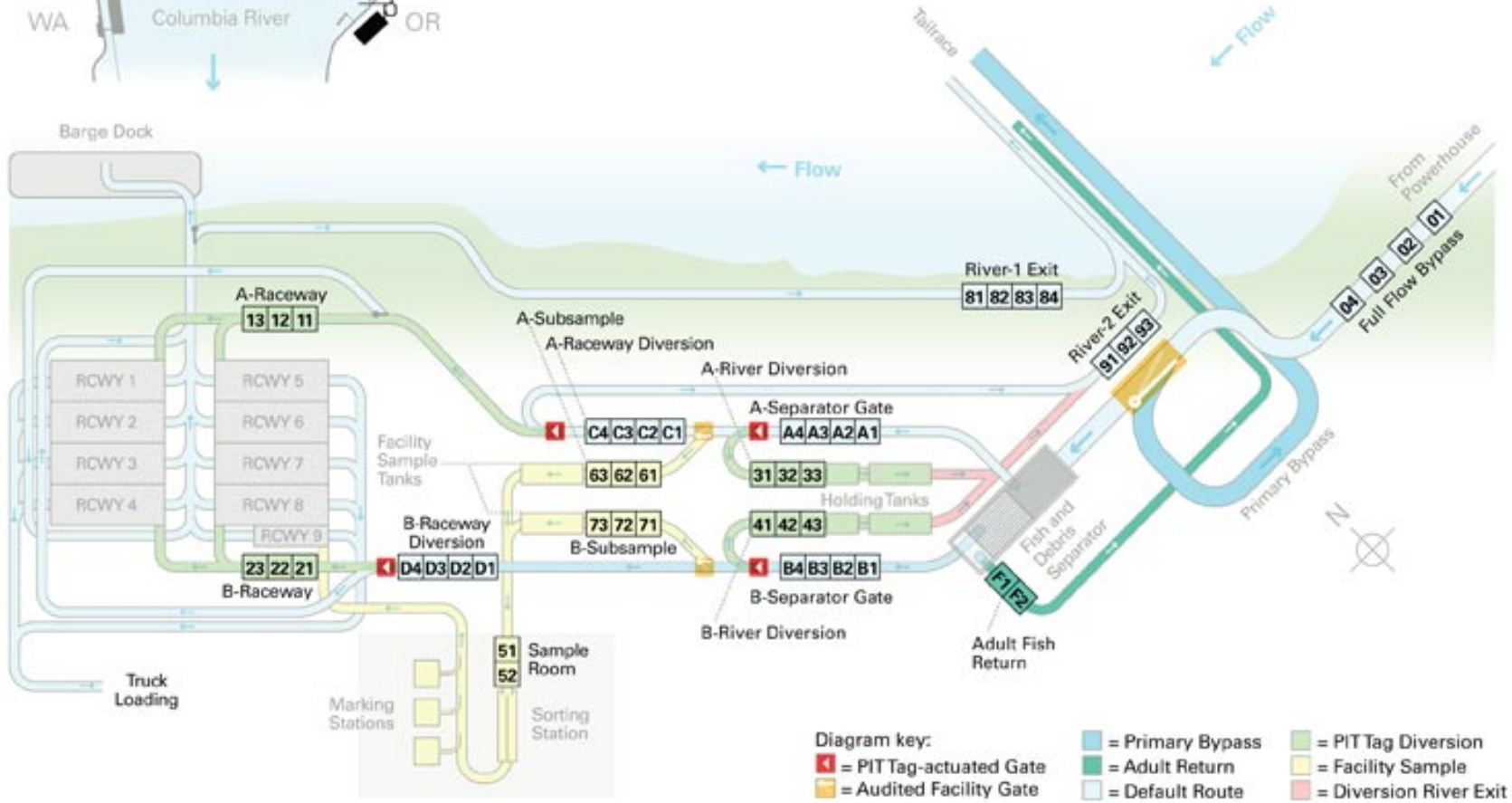
PIT Tag Information System
Columbia Basin | ptagis.org

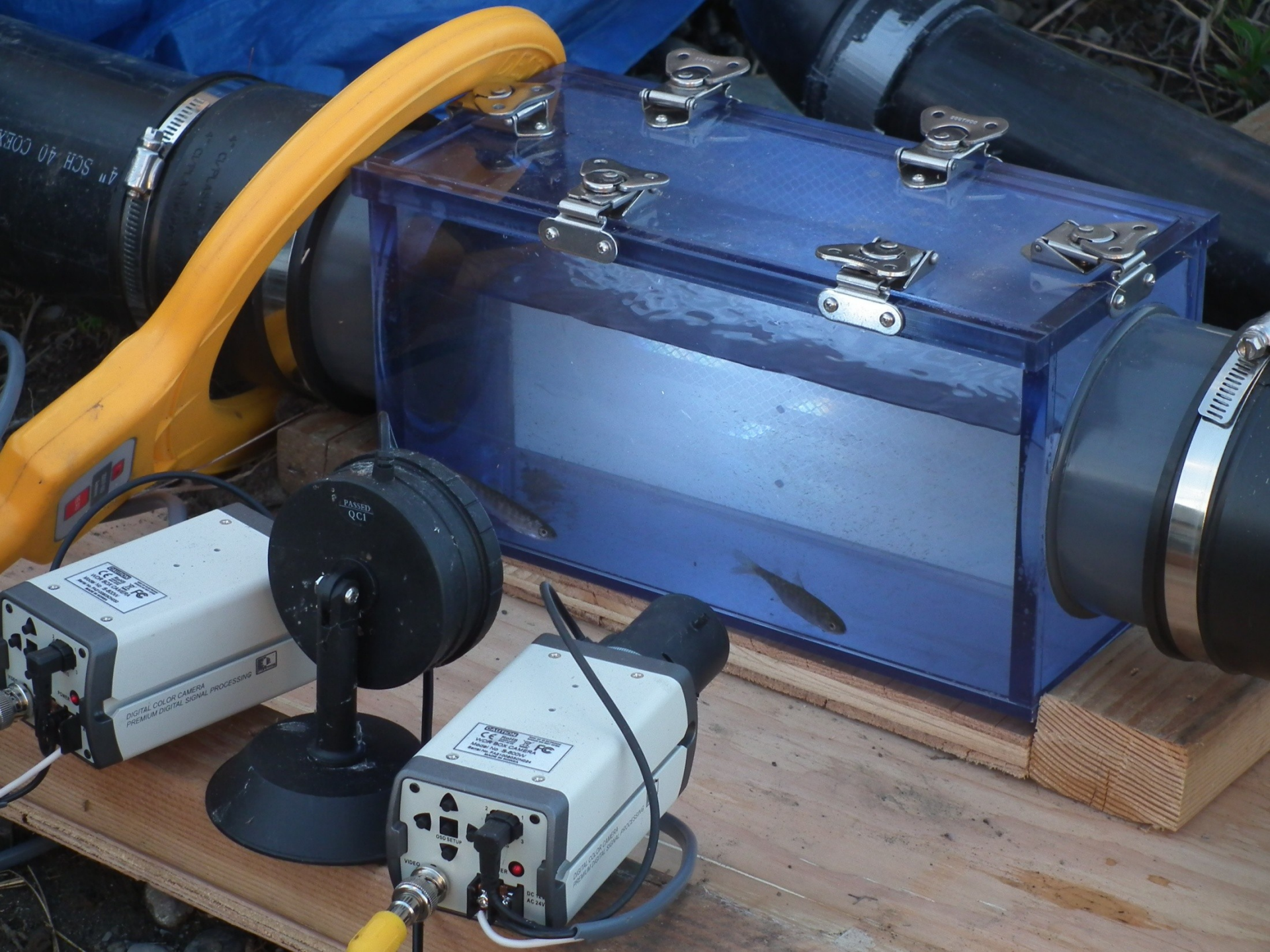
McNary Smolt Bypass and Collection (MCJ)

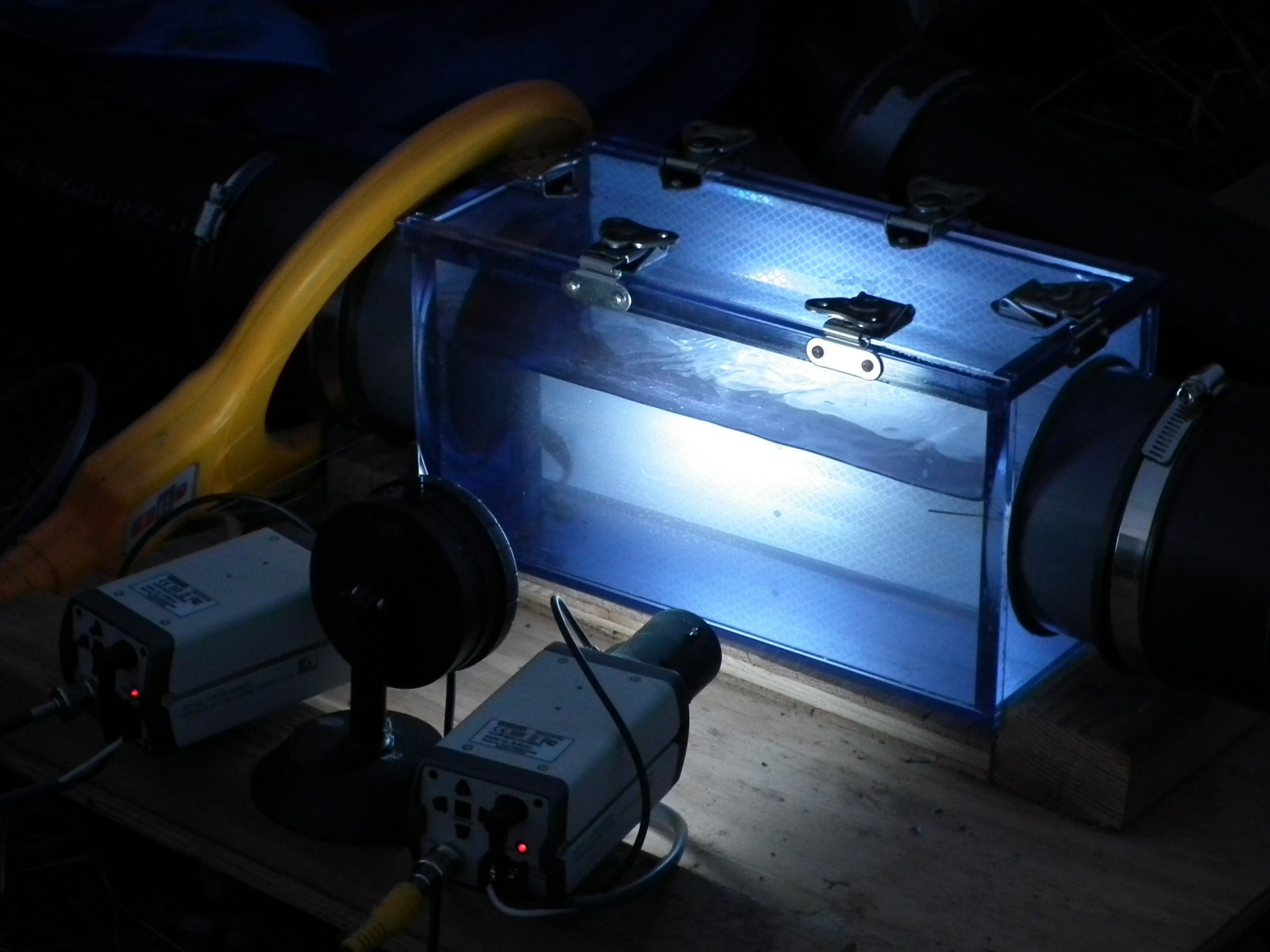
PIT Tag Interrogation Coil Map: Version 3.1, Cnfg. #160; Revised June, 2003

Site Overview:

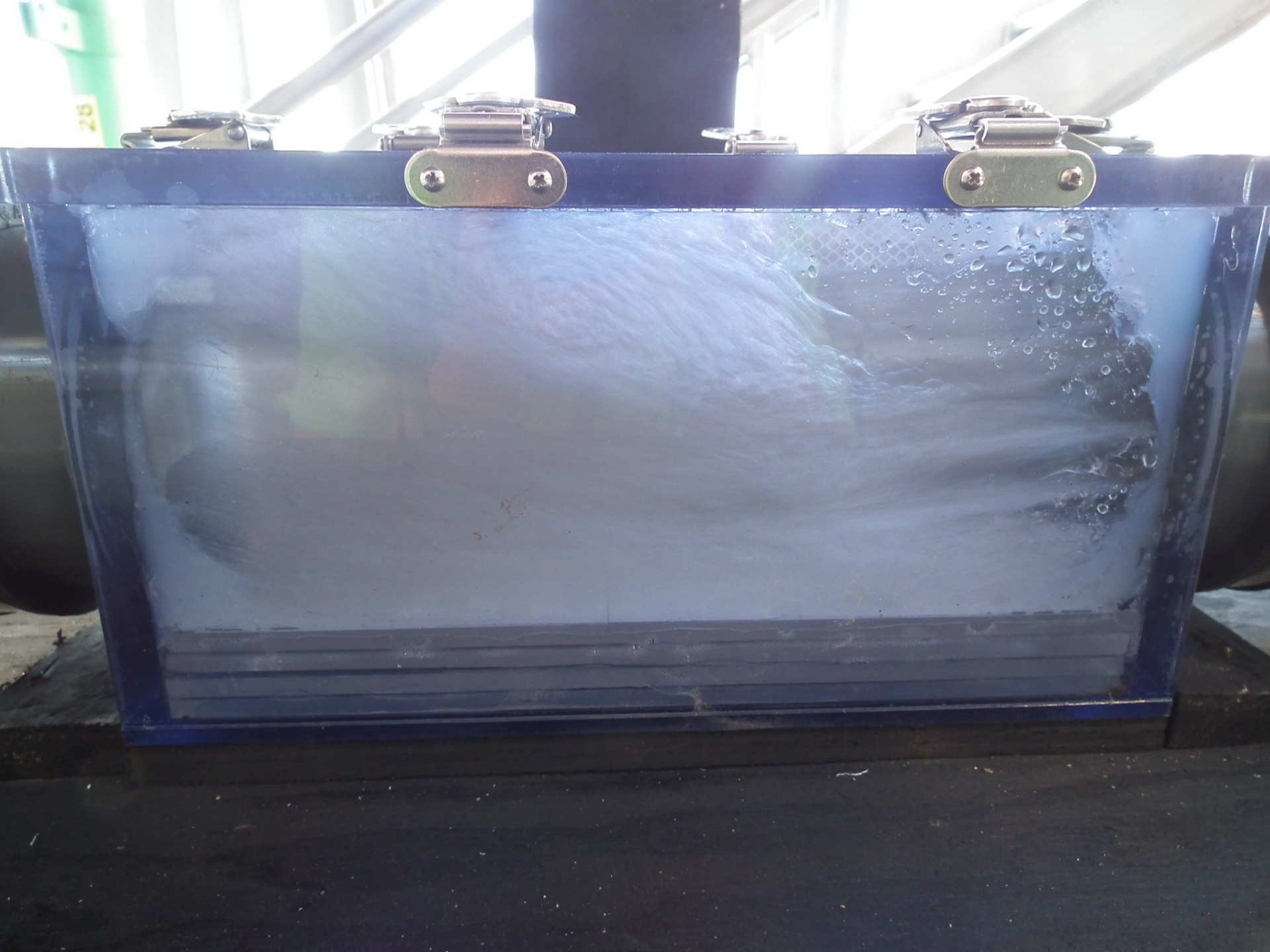


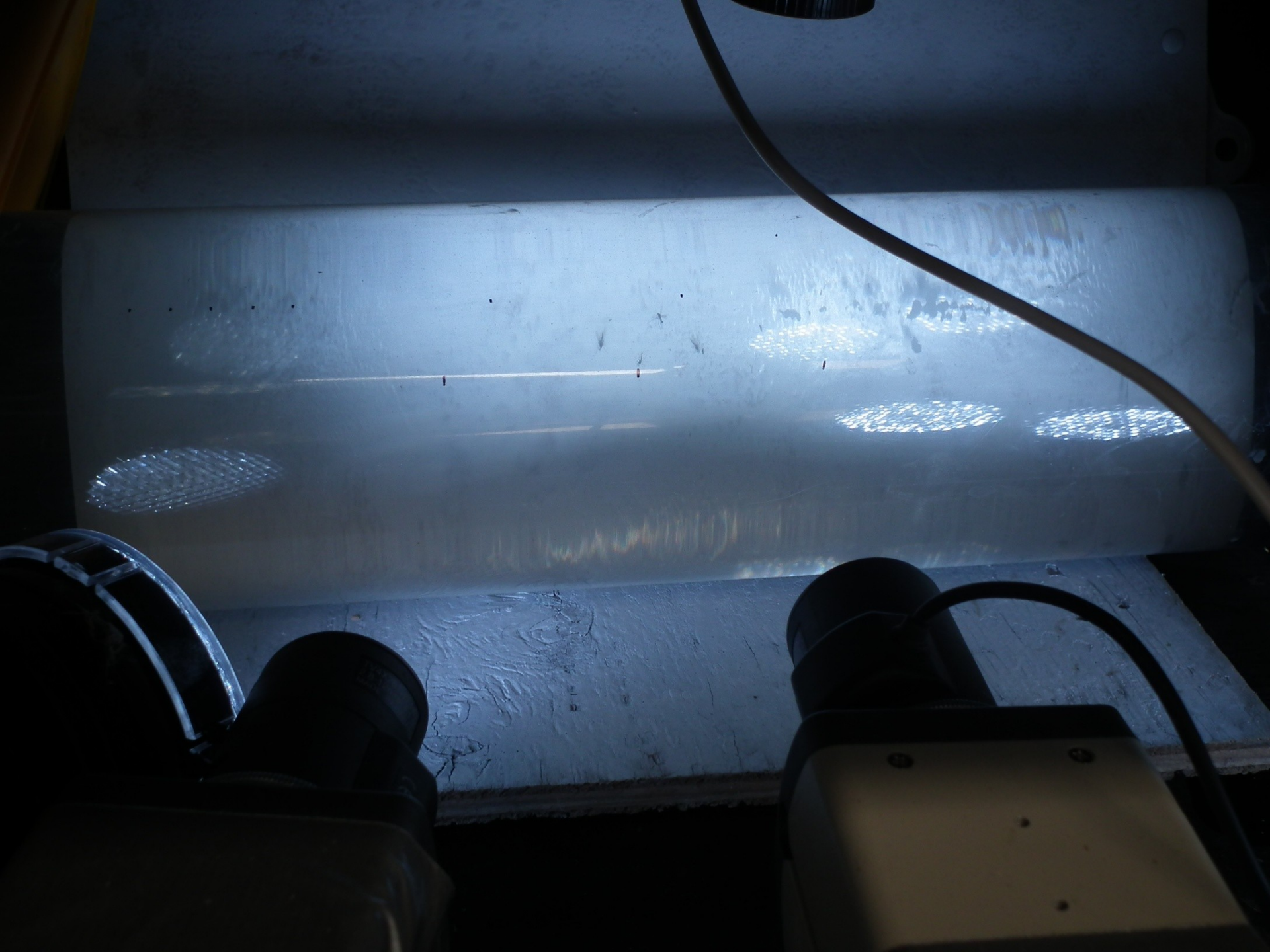



PASSED
QCI
DIGITAL COLOR CAMERA
PREMIUM DIGITAL SIGNAL PROCESSING
OSD SETUP
VIDEO



VALVE
VALVE





R
07/13/11
17:28:48
1
CH 1
CH 2
CH 3

Tag Reader Not Connected
07/13/11 17:28:53

Tag: 3D9.1C2D55A056
07/18/11 06:23:06

Tag: 3D9.1C2D5596C9
07/18/11 02:24:29

Tag: 3D9.1C2D3CB6CB
07/18/11 06:13:23

07/17/11 14:52:13

07/18/11
02:24:17
1
CH 1
CH 2
CH 3
Tag: 3D9.1C2D5596C9

Tag: 3D9.1C2D5596C9
07/18/11 02:24:29

R
07/14/11
02:14:25
1
CH 1
CH 2
CH 3
Tag: 3D9.1C2D54D939
07/14/11 02:15:17

McNary Lessons

- Fish going by very fast making it difficult to capture them at 30 fps. Often the fish only partially appear in a single frame.
- Fish also are often not oriented with the flow. This makes measurement difficult.
- Does not appear very fish friendly!

Possible alternative locations at McNary?

Conclusions

- Video has not worked well at the two sites tried, though probably could at other sites with:
  - Lower flow rate
  - Less depth of water to view through (12-18” maximum)
  - Easier window cleaning

Questions for FPOM

- Do you see any reason/site/problem for testing video as part of our Accords project in 2012?
- Should we remove the window we installed at the Bonneville juvenile flume, or leave it in for possible future projects?